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MITCHELL, KATHERINE W	
ART UNIT	**PAPER NUMBER**
3677	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 10/031,411	Applicant(s) SIGNAROLDI ET AL.	
	Examiner Katherine W. Mitchell	Art Unit 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-29,36-40,42,43 and 45-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-29,36-40,42,43 and 45-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 Jan 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

Examiner repeats:

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the lower guide arrangement having an angle of flare continuously increasing in the direction of travel of the pipeline during laying must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

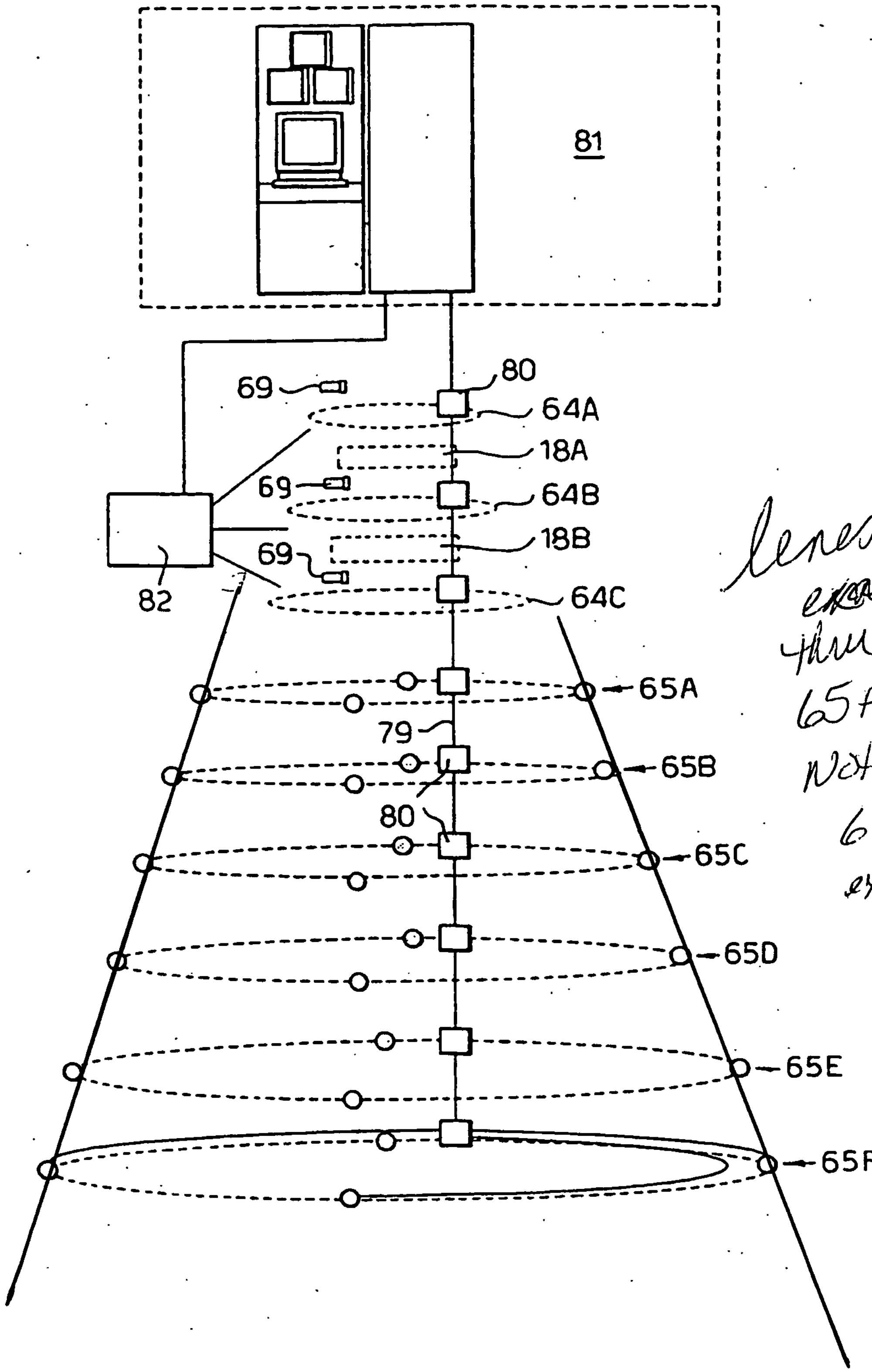
2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

10/031411

PCT/EP99/05202

pg 3

Fig.13.



lenes by examiner thru 65A & 65F @ midpoint. Note that 65B & 65D do not extend to ling

3. Note that examiner has marked up Fig 13, which examiner assumes is intended to show the continuously increasing flare angle, to show that at lease 65D and 65B are not continuously increasing angles.

4. This objection was not addressed in the applicant's response, and the standard procedure is for the response to be held deliberately non-compliant, the response is not entered, and no new time period is given. However, since that would result in the application going abandoned, and examiner can understand the claimed feature, the examiner has decided to consider the amendment even though it is non-compliant. However, any future response MUST address this objection or it will be held deliberately non-compliant.

Specification

5. The amendment filed 11/2/2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: lower guide arrangement flares outwardly with the angle of flare **continuously increasing** in the direction of travel of the pipeline during laying. Examiner has reviewed original claim 5 and page 22's table. While they support an increasing angle of flare, examiner does not see how continuously increasing, which applicant argues to mean non-linear

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

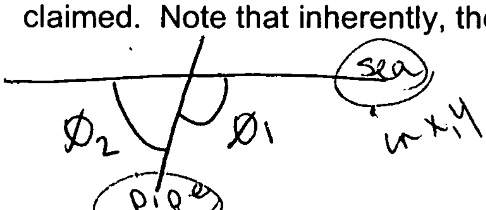
6. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

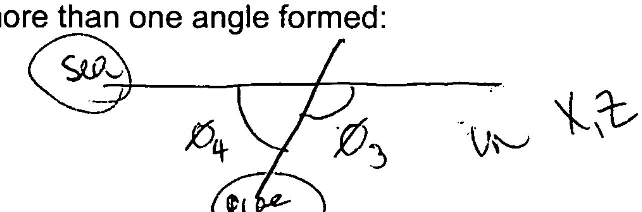
> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 45 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 45 now requires continuous increase of the outward flare -- .e., non-linear. Examiner finds the only reference to the flare shape to be on pages 2-3 of the specification, which is silent on "continuously increasing", and as noted, the flared shape is not in any drawings.

8. Claims 22-29 and 36-40 and 42-43 and 45-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Every independent claims now includes that the guiderollers allow some bending of the pipeline "to a shallower angle of inclination" with respect to the surface of the sea. However, there is no reference to which angle with respect to the sea surface is being claimed. Note that inherently, there will be more than one angle formed:





Examiner considers this limitation inherently met by any piping that enters the water.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 22-29 and 36-40 and 42-43 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan Jr, DE 2118360, hereafter called Nolan in view of Shell, GB 1107541, hereafter called Shell, and Lynch USP 4986697. Examiner has provided applicant with a translation of Nolan, as the document was cited on the IDS without a translation, and all page and line numbers refer to this translation.

Re claims 22-29 and 36-40 and 42-43 and 45-47: Nolan teaches a pipe laying vessel and method comprising (page 3, 2nd, 6th, and 7th paragraphs, Figures) an upwardly extending tower (28,68) with a plurality of guiding element rollers (36), spaced along the pipeline path and defining lateral path limits, located such that the rollers allow some bending of the pipeline as it passes thru the lower guide arrangement (page 5, last 2 paragraphs – top 2 paragraphs page 6, figures, paragraph noted /25 on page 11). Nolan teaches in page 22, paragraph 56 of the translation that his invention is a method of laying pipe in which the angle at which the pipeline penetrates the water can be controlled, and thus inherently both s-laying and j-laying methods and apparatus are taught. However, Nolan does not teach a means for monitoring the forces, including a load cell, applied to the pipeline by rollers of the lower guide arrangement. Shell teaches in page 1, col 2, line 77 -- page 2, col 1, line 5, page 5 col 1 lines 15-43, and

page 7, col 2, lines 67-93 that it is important to measure and control the pipeline bending when laying the pipeline from a floating vessel, but no specific means for measuring the forces are disclosed. Lynch teaches a method of laying pipeline from a barge which employs load and position sensing means associated with guide rollers to prevent damage to a pipe when the pipe is being laid in a curve in col 3 lines 16-32, and col 8 lines 60-61 disclose that the sensing means can be a load cell.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Nolan and Shell and Lynch before him at the time the invention was made, to modify Nolan as taught by Shell and Lynch to include load sensing means such as load cells to measure and control the pipeline bending when laying the pipeline from a floating vessel, in order to lay pipelines in a catenary curve in the ocean without damage to the pipeline. One would have been motivated to make such a combination because damage-free pipelaying in different conditions, such as pipe size, bend, water currents would have been obtained, as taught/suggested by Lynch in col 3 lines 30-48 and Shell page 5 col 1 lines 31-42.

Guide rollers including axes of rotation inclined toward one another in a plane perpendicular to the tower, are taught in Nolan Fig 6.

Guide rollers freely rotatable on bearings and extending at least ¼ revolution, and/or substantially all around the path of the pipeline are shown in Nolan Figs 9 (176, 178, 180) and Fig 10 (36) as well as discussed on page 11 1st two paragraphs and claim 9, page 25.

Further Re claims 45-47: A flared tower as described is shown in Nolan Fig 3 and 12a-12d. The lower guide assembly is considered to include everything below bracketed section {34] in Fig 1. The angle of flare increases in the direction of pipeline travel during laying in the section between "68" and "88".

Further Re claims 24-25 and 36-40: Adjusting the vessel operation or pipeline operation in dependence upon the monitoring is taught by in Shell page 7 col 2 lines 67-93 and page 1 col 2 lines 77-page 2 col 1 line 5. The "movement of the vessel" would inevitably involve the speed or direction of the travel of the vessel.

Further Re claims 27 and 47: A control station of some type is inevitably required for load cells to monitor forces and provide data for operation adjustments.

Further Re claims 28-29 and 47: Lynch teaches in col 7 line 37 - col 8 line 53 and Fig 9 that the force monitoring means' signals can be used to operate a piston and cylinder (piston rod 222 of hydraulic actuator 220) arrangement via a hydraulic supply (254) and control valve (258) station.

Further Re claims 42-43 and 47: Associating force monitoring means with guide rollers has been discussed as taught by Shell above. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have had monitoring means on respective sets of rollers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, especially since a bending pipe would be expected to have varying forces along its length and thus multiple measurements would obviously be needed.

Further Re claim 47: Lynch col 7 line 37- col 8 line 42 teaches using piston and cylinder arrangements for operating rollers as well as motivation for using piston and cylinder arrangements in pipe-laying applications:

> *9) Attention is now directed to FIGS. 6, 7 and 8 which shows an embodiment of the invention concerning the lower horizontal roller of the pipe guide roller arrangement. A lower horizontal roller 210 is mounted on a frame 212 which is pivotally connected to element 214 of the center module frame 174 of the plow. A vertical support member 214 is rigidly attached at its upper end to the center module frame 174. A pivot 216 connects frame 212 in a pivotal manner to this vertical member 214. Horizontal load and position sensing roller 210 is pivotally supported from frame 212 by pivot 218. Frame 202 is connected to Tee member 230 which extends under roller 210 and supports pivot 218 on each end thereof. Thus, it is seen that with the roller 210 mounted on the extremity of the frame 212 from pivot 216 that the roller can traverse through a vertical arc. The frame 212, at its extremity from the end of pivot 216 is interconnected with the lower portion 175 of the center module frame 174 by a hydraulic linear actuator 220. Preferably, an accumulator type hydraulic circuit is incorporated with the hydraulic linear actuator, which is also commonly referred to as a gas over oil circuit, so as to cause the linear actuator to function as a gas spring. The ratio of gas to oil volumes and initial charge pressures are adjustable so as to be able to vary the spring rate. It is the nature of a gas spring for the pressure to increase in a mathematical curve as the cylinder is compressed.*
>
> *(10) Piston rod 222 of hydraulic linear actuator 220 is pivotally connected at 224 to frame 212. The housing of the linear actuator 220 is connected at pivot 226 to member 175 of the center module frame 174.*
>
> *(11) The gas spring can be calibrated so that the range of pressures generated by the spring travel could be interpreted to determine the horizontal roller travel in the vertical plane. Thus a specific pressure in an accumulator circuit could be converted to a specific vertical position of the horizontal roller 210. A hose 228 can be connected and be a part of the accumulator circuit and can extend to the barge so that the pressure of fluid in the hose 228 can be observed by the operator of the laying barge. FIG. 9 shows a hydraulic circuit for the gas spring arrangement of FIGS. 7 and 8. Hose or conduit 228 is connected to the lower end of a cylinder 250 which has gas 252 in the upper end and an oil at 254 in the lower end with an interface 256 therebetween. Hose 226 connects to the lower end of cylinder 250. Oil may be added or removed by use of valves 258 having outlet 268 and a conduit 270 in fluid communication with the hose 228. The upper end of the cylinder 250 is in fluid communication through conduit 264 to valve 260 and also to pressure gauge 262. Gas can be added through inlet 266 of valve 260 and conduit 264 to the upper end of cylinder 250. Thus this improved arrangement shown in FIGS. 6, 7, 8 and 9 allows the operator to know the position of the pipeline within the*

hiatus 194 (See FIG. 2) of the guide rollers which is preferable over just knowing when the pipe contacts the fixed horizontal roller.

(12) It can also be understood that the accumulator circuit working pressure can be adjusted so that the pressure generated from the horizontal roller 210 in the lowermost position of its travel range is sufficiently high so as to alert the operator that the force on the roller 210 was dangerously high and that the plow must be repositioned in relation to the barge.

(13) The gas spring support of the lower horizontal roller as shown in FIGS. 6, 7, 8 and 9 can be adjusted to provide a cushioning effect to the pipe. Thus when the pipe is undulating due to the sea state induced motions of the laying barge, which is very often the case, the impact of the pipe on the roller can be minimized thus greatly reducing the chance of damage to the pipe or its coating.

Further Re claims 28-29 and 47: Lynch teaches in col 7 line 37 - col 8 line 53 and Fig 9 that the force monitoring means' signals can be used to operate a piston and cylinder (piston rod 222 of hydraulic actuator 220) arrangement via a hydraulic supply (254) and control valve (258) station.

11. Claims 22-29 and 36-40 and 42-43 and 45-47 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan in view of Jones et al. USP 3668878.

Re claims 22-29 and 36-40 and 42-43 and 45-47: Nolan teaches a pipe laying vessel and method comprising (page 3, 2nd, 6th, and 7th paragraphs, Figures) an upwardly extending tower (28,68) with a plurality of guiding element rollers (36), spaced along the pipeline path and defining lateral path limits, located such that the rollers allow some bending of the pipeline as it passes thru the lower guide arrangement (page 5, last 2 paragraphs – top 2 paragraphs page 6, figures, paragraph noted /25 on page 11). Nolan teaches in page 22, paragraph 56 of the translation that his invention is a method of laying pipe in which the angle at which the pipeline penetrates the water can be controlled, and thus inherently both s-laying and j-laying methods and apparatus are

taught. However, Nolan does not teach a means for monitoring the forces, including a load cell, applied to the pipeline by rollers of the lower guide arrangement.

Jones et al. teaches that "v-shaped roller assemblies 85 may be provided with force monitoring load cells" in col 23 lines 56-60, to minimize pipeline stresses and tension. Col 53 lines 51-73 further described the benefits of monitoring forces to enhance operator control and prevent serious deviations in forces, and that the monitoring data can be used to adjust parameters to ensure proper pipe laying. It would have been obvious to one of ordinary skill in the art, having the teachings of Nolan and Jones et al. before him at the time the invention was made, to modify Nolan to include guide rollers monitored for forces applied to the pipeline as taught by Jones et al. in order to insure pipe is laid properly and that excessive forces don't stress the pipeline. One would have been motivated to make such a combination because monitoring forces would prevent expensive maintenance problems later by allowing proactive adjustments to ensure proper pipe positioning and laying when laying the pipeline from a floating vessel in a catenary curve in the ocean without damage to the pipeline. Damage-free pipelaying in different conditions, such as pipe size, bend, water currents would have been obtained Monitoring the forces would prevent expensive maintenance problems later by allowing proactive adjustments to ensure proper pipe positioning and laying.

Further Re claims 45-47: A flared tower as described is shown in Nolan Fig 3 and 12a-12d. The lower guide assembly is considered to include everything below

bracketed section {34] in Fig 1. The angle of flare increases in the direction of pipeline travel during laying in the section between "68" and "88".

Further Re claims 24-25 and 36-40: Adjusting the vessel operation or pipeline operation in dependence upon the monitoring is taught by Jones in col 26 line 69 - col 27 line 35, Figs 17-20, and in much greater detail continuing through column 37. The "movement of the vessel" would inevitably involve the speed or direction of the travel of the vessel.

Further Re claims 27 and 47: A control station (150) of some type to monitor forces and provide data for operation adjustments is shown in Fig 24 of Jones.

Further Re claims 28-29 and 47: Jones teaches in col 21 lines and Fig 9 that the force monitoring means' signals can be used to operate a piston and cylinder arrangement via a hydraulic supply and control valve station:

(135) The segment 13a is provided with a plurality (in this case two) longitudinally displaced, vertical load sensing units 86 and 87 which are associated with longitudinally spaced pipe cradling, roller units 85a and 85b. The two vertical load sensing units 86 and 87 are substantially identical and illustrated in FIGS. 10, 11 and 14.

(136) Thus, for example, as shown in FIG. 14, load cell unit 86 comprises a load cell or transducer 88 which is fixedly attached on the top of a cross member 77c of pontoon segment 13a by a mounting bracket 89. Obviously, however, other load transducers of an hydraulic, pneumatic, mechanical or electrical nature may be employed. In lieu of hydraulic load cells electronic type load cells may be employed, suitably modified for underwater use.

(137) A force transmitting U-shaped, bracket 90 comprising legs 90a and 90b and an end member 90c is pivotally mounted on horizontally extending shaft means. Thus, shaft 91a connects leg 90a to a bracket 89a while shaft 91b connects leg 90b to a bracket 89b. Bracket means 89a and 89b are connected to, and extend aft from, cross member 77d.

(138) Force-transmitting bracket 90 has its end portion 90c disposed beneath, and in supporting engagement with, a bracket 92 which in turn supports roller unit 85a.

(139) A downwardly facing, force transmitting face 93 of bracket 92 is disposed in force transmitting engagement with load cell 88 and is located vertically between this load cell and roller unit 85a.

(140) Bracket 90 will pivot downwardly about coaxial shafts 91a and 91b in accordance with the pipeline load imposed through roller assembly 85a on

bracket 92 and thus transmit an indication of this load to the load cell 88. This indication of load may be then relayed to an appropriate, monitoring or control station on the lay vessel 11 as an hydraulic, pneumatic, electrical, or mechanical signal.
(141) By monitoring the operation of the load cells 88 associated with the load cell stations 86 and 87, an operator or control system on the lay vessel 11 may readily determine the condition of vertical load interaction between the pipeline and the lower or outermost stinger extremity. The term "vertical," as here used, is employed in a general sense encompassing the generally vertical vector involved in the normal or perpendicular interaction between the pipeline and load cell stations 86 and 87, even though this normal interaction itself is inclined relative to a vertical direction.
(142) Thus, for example, when the load cell 88 at the load station 86 indicates that no pipeline load is being transmitted to this station, the operator or control system knows that the tension exerted on the pipeline is such as to hold the pipeline out of supporting engagement with the roller station 85a or that the stinger has dropped. An operator or control system, upon detecting that the pipeline was no longer being supported by the roller station 85a, would be forewarned of impending excessive separation between the stinger 12 and the pipeline.

And page 11 lines 20-35 teach that a piston and cylinder are known hydraulically actuated assemblies for inducing convergence and separation:

(30) First motor means, comprising hydraulically actuated, linearly reciprocable, piston and cylinder assemblies 27 and 28 serve to move the frame 20 toward and away from the frame 21 so as to induce separation or convergence of the wheel means 23 and 26. Convergence of the frames 20 and 21, with the pipeline portion 4a disposed between the wheel units 23 and 26, causes the wheel units to compressively engage generally opposite upper and lower sides of the pipeline portion 4a. The degree of compression exerted on pipeline portion 4a by the motor means 27 and 28 may be selectively varied and adjusted. As will here be appreciated, the ultimate degree of compression exerted on the pipeline by the wheel units 23 and 26, as a result of the operation of motor means 27 and 28, will be limited by the inflation pressure of wheel units 23 and 26.

Further Re claims 42-43 and 47: Associating force monitoring means with guide rollers has been discussed above. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have had monitoring means on respective sets of rollers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, especially since a bending pipe would be expected to

have varying forces along its length and thus multiple measurements would obviously be needed.

Further Re Claim 47: Jones further shows in paragraphs 127-128 and 512-518 (below) that multiple set of guide rollers are evenly spaced and used below sea level to resist lateral movement and more easily form a curve when the pipe is being guided thru the water. The spacing and number of sets would be determined by pipe diameter, laying radius, and site conditions in order to help the pipeline to resist lateral movement and more easily form a curve when the pipe is being guided thru the water despite sea currents and ship movement.

127) As is shown in FIG. 10, the cross members 77 may serve to support longitudinally aligned and longitudinally spaced, pipe cradling roller assemblies 85. These roller assemblies are described, for example, in the aforesaid Rochelle et al. U.S. Pat. No. 3,507,126 and in the aforesaid Lawrence U.S. Pat. No. 3,390,532. These roller assemblies preferably support pipeline 1, with the pipeline centerline disposed beneath the center of buoyancy of segments 71 and 73.

(128) The roller assemblies 85, along with pipe cradling roller assemblies mounted on the ramp 17 of lay barge 11, serve to support the underside of the pipeline, while imposing impedance to pipeline lateral movement, and while stabilizing the pipeline during the laying operation as pipe segments move downwardly from the lay barge, over the stinger 12, and toward the ocean surface 2.

512) Where it is necessary to adjust the elevational position of the stinger 12, this may be accomplished by vertically adjusting the position of pivot unit 48. Alternatively, a desired modification in elevation of the pipeline in the transition zone between the vessel 11 and the stinger 12 could be effected by selectively adjusting the elevation of pipe cradling roller units on the ramp 17, in the manner generally described in the aforesaid Lawrence U.S. Pat. No. 3,390,532. The vertical adjustment of the pipeline in this transition zone may also entail the adjustment of elevation of the hitch unit 48, as well as adjustments in elevation of one or more pipe supporting cradles on the ramp 17.

(513) For the purpose of this disclosure, reference has been made to vertical load sensing means and lateral load sensing means located on the outermost stinger segment. It is contemplated, however, that such sensing means may be incorporated on several, or all, of the stinger segments.

(514) If a unitary stinger is employed, such as that described in the aforesaid Lawrence U.S. Pat. No. 3,390,532, such vertical and lateral load sensing means may be distributed longitudinally along the unitary stinger.

(515) By providing sensing means of this nature, distributed entirely or substantially along a stinger, enhanced operator control is provided. With

this arrangement, an operator may be able to anticipate serious deviations in vertical and lateral pipeline forces. Further, with such multiple condition sensing stations an operator, through monitoring of all of the stations, might be better able to selectively adjust the intensity and/or rate of condition correcting thrust vectors.

(516) Where a series of longitudinally displaced, lateral load cell units is provided, these load cell units could be positioned so as to define an aft directed, laterally diverging path, the peripheries of which are disposed on opposite lateral sides of the pipeline buoyantly supported by the stinger. With this arrangement, the spaced lateral load cell units on each side of the pipeline would generally define an allowable bending arc, so as to yield correction indicating signals only when lateral bending in excess of the allowable was developed.

(517) In the described embodiment, deviations with respect to tension and lateral interaction have been detected directly in the form of monitored force deviations. However, indications of force deviation may also be detected by monitoring the positioning of the pipeline relative to the floating vessel means.

(518) As will also be apparent, vessel hull shapes other than that described might be employed in practicing the invention. It is also feasible that tension motivating systems other than hydraulic systems might be employed.

Response to Arguments

12. Applicant's arguments filed 3/16/2005 have been fully considered but they are not persuasive. Applicant argues that Nolan does not teach j-laying, but as noted above, Nolan's inventive concept is being able to vary the angle of the pipeline going into the water, and thus would work with j-lay and s-lay techniques. Further, j-laying is distinguished from S-laying by the angle of the pipeline going into the water, and whether or not the phrase "j-laying" is disclosed in Nolan, the claimed steps are all met. If those steps define j-laying, then j-laying is met. Examiner does not agree that Fig 12A of Nolan teaches S-laying, as a steeper downward inclination as the pipe leaves the tower would support J-laying, not S-laying, since the vertical section of the "J" is the steep downward pipe between the tower and horizontal displacement does not occur in j-laying until the pipeline nears the seabed.

13. No modification of Nolan is necessary to support j-laying -- the difference in

The invention concerns a method and a device for laying pipelines, and to be sure down onto the ocean floor from a floating watercraft. In particular, the invention concerns a procedure for laying pipelines, in which the angle at which the pipeline enters the water is adjustable, and to be sure by the use of a rotating ramp. /1*

It has been usual up until now to employ a rotatable lifting ramp mounted on a floating pipeline-laying ship for controlling the pipe /2 contour and pipe loading when laying a pipeline, in order thereby to support an overhanging part of the pipeline hanging down from the laying ship. It has been found that the length of the supporting ramp needed to provide appropriate support for controlling the pipe contour can be rather large with increasing water depth. The supporting ramp, with this increased length, can have greater sensitivity to the stress imposed by the supported pipeline or by ocean conditions.

In conjunction with proposed methods for laying pipelines it is agreed that in some cases it is possible to do without the supporting ramp, and to be sure by the selection of the pipe contour and the pipeline loading by control of the angle, and to be sure with regard to the horizontal pipe as well as that left behind from the ship. The desired angle of penetration for a given, desired contour can be changed according to numerous conditions, such as, for example, the pipeline weight and stress limit, the rate at which the ship moves and the water depth. In addition to that, the required angle can change /3 under certain laying conditions according to the selected cross-sectional contour of the pipeline, which can have the form of a chainlike beam capable of bending, that of a beam under tension or a different form, such as the one proposed by Lawrence in US patent document 3,472,034, which was transferred to the legal successor of the present invention.

Known methods for laying pipelines, such as that disclosed by Lawrence in US patent document 3,472,034 and the procedures from US patent documents no. 3,26?,23? and no. 3,38?,563 [illegible numbers], had as their objective the changing of the pipeline-penetration angle by utilizing a pipeline that has an take-up frame with a pivotable mounting on a ship. A current approach is likewise described on pages 32 to 54 of the [illegible] edition of the publication *Ocean Industry*, Volume 5, No. 3, 1970, from the Gulf Publishing Company, in which there is an evaluation of a swinging ramp employed for laying a beamlike pipeline with bending capability.

Although this method can be quite acceptable, certain difficulties can be anticipated with its use, particularly when supplying additional pipe sections to and from the take-up frame. Moreover, these procedures are largely limited in their ability to change the angle of penetration. /4

*Number in the margin indicates pagination in the foreign text.

Because laying operations in relatively shallow water require a smaller penetration angle due to pipeline characteristics, such as size and weight, in order to retain the desired pipe contour, while other laying operations require a large penetration angle of 60° or more, those methods mentioned thus far are limited in their applicability.

It is therefore a principal goal of the invention to create a method for laying pipelines, in which the penetration angle of the pipeline can be controlled by the use of a rotating-ramp frame or uptake frame mounted on a floating ship and in which operational difficulties arising with the supplying of additional pipeline sections are kept to a minimum.

A further objective of the invention is to create a method for pipeline laying, in which the penetration angle of the pipeline can be adjusted over a wide range. /5

s-laying and j-laying is the angle of the pipeline as it descends from the tower to the seabed, and Nolan is specific that the angle can be varied "over a wide range"

14. With regard to the angle of flare, applicant has not shown the increasing flare angle that examiner can find, and the outward flare of Nolan appears similar to applicants'.

15. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., forces of 525 metric tons involved) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, note in particular the references in Nolan to stress and tension on page 2 of the translation:

> *In conjunction with proposed methods for laying pipelines it is agreed that in some cases it is possible to do without the supporting ramp, and to be sure by the selection of the pipe contour and the pipeline loading by control of the angle, and to be sure with regard to the horizontal pipe as well as that left behind from the ship. The desired angle of penetration for a given, desired contour can be changed according to numerous conditions, such as, for example, the pipeline weight and stress limit, the rate at which the ship moves and the water depth. In addition to that, the required angle can change /k under certain laying conditions according to the selected cross-sectional contour of the pipeline, which can have the form of a chainlike beam capable of bending, that of a beam under tension or a different form, such as the one proposed by Lawrence in US patent document 3,472,034, which was transferred to the legal successor of*

the present invention.

16. While some s-laying and j-laying vessels may well be different from each other, it was the point of Nolan to have a vessel that could accommodate a wide range of pipeline insertion angles and shapes.

17. Piston and cylinder arrangements and the inevitable use of the control signals/station for their control have been addressed above.

18. As previously noted, there is no drawing depicting the trumpet shaped flare as claimed increasing in the direction of travel, and thus the angle continuously increasing is also unclear and examiner examined as best understood. Also, since this limitation is part of an apparatus (vessel) claim, the direction of travel is considered as to a direction the vessel is capable of traveling.

19. In response to applicant's arguments, regarding claim 47, against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W. Mitchell whose telephone number is 571-272-7069. The examiner can normally be reached on Mon - Thurs 10 AM - 8 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Katherine W Mitchell
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Art Unit 3677

Katherine Mitchell

Kwm
1/10/2005